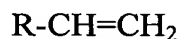


CLAIMS

We claim:

1. A hot melt adhesive composition comprising a blend of the following components:

(a) about 4% to 50% by weight of a random RCP copolymer of propylene and at least one α -olefin comonomer having the following molecular structure:



where R is hydrogen or a C₂ to C₁₀ alkyl group, and said α -olefin comprises about 1.5% by weight to about 20% by weight of the said RCP copolymer;

(b) about 20% to 65% by weight of a tackifier;

(c) about 0% to 60% by weight of an atactic poly- α -olefin (APAO) polymer;

(d) about 0% to 40% by weight of a plasticizer;

(e) about 0% to 40% by weight of a wax;

(f) about 0% to 3% by weight of a stabilizer;

(g) about 0% to 60% by weight of a filler; and

(h) about 0% to 40% by weight of a secondary polymer;

the components totaling 100% by weight of the composition.

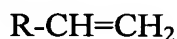
2. The composition of claim 1 wherein said RCP copolymer has a density of about 0.88 g/cc to 0.905 g/cc and a melt flow rate of equal to or greater than 5 g/10min and an a melting point equal to or less than 145°C.

3. The composition of claim 2 wherein said RCP copolymer is an mRCP copolymer of propylene and at least one α -olefin prepared by using a metallocene catalyst system.

4. The composition of claim 1 wherein said APAO polymer has a density of about 0.85 g/cc to 0.89 g/cc and a glass transition temperature (T_g) of from about -5 to -40 °C and a weight average molecular weight (M_w) of from about 4,000 g/mol to about 150,000 g/mol.

5. The composition of claim 1 wherein the α -olefin comonomer is selected from the group consisting of ethylene, butene-1 and hexene-1.

6. The composition of claim 1 wherein the APAO polymer is a homopolymer or a copolymer of propylene and at least one α -olefin comonomer having the following molecular structure:



5 where R is hydrogen, or an alkyl or an aryl radical.

7. The composition of claim 6 wherein the α -olefin comonomer is selected from the group consisting of ethylene, butene-1 and hexene-1.

8. The composition of claim 1 wherein the tackifier is selected from the group consisting of aliphatic and cycloaliphatic hydrocarbon resins and their hydrogenated derivatives, aromatic and hydrogenated aromatic hydrocarbon resins, aromatically modified aliphatic or cycloaliphatic resins and their hydrogenated
5 derivatives, polyterpene and styrenated polyterpene resins.

9. The composition of claim 8 wherein the tackifier has a R&B softening point equal to or greater than 80 °C.

10. The composition of claim 9 wherein the tackifier is a C-5 aliphatic hydrocarbon resin.

11. The composition of claim 1 wherein the plasticizer is selected from the group consisting of mineral oil and liquid polybutene.

12. The composition of claim 11 wherein the mineral oil has less than 30% aromatic carbon atoms.

13. The composition of claim 1 wherein said wax is selected from the group consisting of petroleum waxes, low molecular weight polyethylene and polypropylene, synthetic waxes and polyolefin waxes.

14. The composition of claim 13 wherein the said wax is a low molecular weight polyethylene having a number average molecular weight of about 400 to about 6,000 g/mol.

15. The composition of claim 1 further including 0.1% to about 30% by weight of a surfactant.

16. The composition of claim 15 wherein the surfactant has an HLB of less than 15.

17. The composition of claim 15 wherein the surfactant is selected from the group consisting of fatty acid esters, nonionic ethoxylates and ethylene oxide/propylene oxide copolymers.

18. The composition of claim 1 wherein said filler is selected from the group consisting of talc, calcium carbonate, clay, silica, mica, wollastonite, feldspar, aluminum silicate, alumina, hydrated alumina, glass microsphere, ceramic microsphere, thermoplastic microsphere, baryte and wood flour.

19. The composition of claim 1 wherein the adhesive composition further includes a colorant.

20. The composition of claim 1 wherein said secondary polymer is a thermosetting polymer.

21. The composition of claim 1 wherein said secondary polymer is a thermoplastic polymer.

22. The composition of claim 1 wherein said secondary polymer is selected from the group consisting of ethylene acrylate, ethylene methacrylate, ethylene methyl acrylate, ethylene methyl methacrylate, an ethylene-styrene interpolymers, an ethylene acrylic acid, ethylene vinyl acetate, ethylene vinyl acetate

5 carbon monoxide, ethylene N-butyl acrylate carbon monoxide; polybutene-1 polymers; polyolefins, high and low density polyethylene, polyethylene blends, chemically modified polyethylene, copolymers of ethylene and C₁ to C₁₀ mono- or diunsaturated monomers, ethylene/octene copolymers, ethylene/hexene copolymers, ethylene/butene copolymers, polyamides, polybutadiene rubber, polyesters,
10 polyethylene terephthalate, polybutylene terephthalate, thermoplastic polycarbonates, poly-alpha-olefins, atactic polypropylene, isotactic polypropylene, syndiotactic polypropylene, isotactic random copolymers, metallocene catalyzed isotactic random

copolymers, thermoplastic polyacrylamides, polyacrylonitrile, copolymers of acrylonitrile and other monomers such as butadiene or styrene, polymethyl pentene, 15 polyphenylene sulfide, aromatic polyurethanes; styrene-acrylonitrile, acrylonitrile-butadiene-styrene, styrene-butadiene rubbers, acrylonitrile-butadiene-styrene elastomers; A-B, A-B-A, A-(B-A)_n-B, (A-B)_n-Y block copolymers wherein the A block comprises a polyvinyl aromatic block such as polystyrene, the B block comprises a rubbery midblock which can be polyisoprene, and optionally 20 hydrogenated, such as polybutadiene, Y comprises a multivalent compound, and n is an integer of at least 3, polyvinyl alcohols and copolymers thereof, polyvinyl acetate and random copolymers thereof, and polyvinyl aromatic-rubber block copolymers.

23. The composition of claim 1 wherein said secondary polymer is an ethylene butyl acrylate copolymer.

24. The composition of claim 1 wherein said secondary polymer is an ethylene/octene copolymer.

25. The composition of claim 1 wherein said secondary polymer is an ethylene vinyl acetate/maleic anhydride terpolymer.

26. The composition of claim 1 wherein said secondary polymer is a styrene/ethylene-butylene/styrene block copolymer.

27. The composition of claim 1 wherein said secondary polymer is a styrene/butadiene-butylene/styrene block copolymer.

28. The composition of claim 1 wherein said secondary polymer is an ethylene/vinyl acetate copolymer.

29. The composition of claim 1 wherein said secondary polymer is a styrene/isoprene/styrene block copolymer.

30. The composition of claim 1 wherein said secondary polymer functions to increase or decrease elasticity of the adhesive composition.

31. The composition of claim 1 wherein said secondary polymer functions to increase or decrease adhesion of the adhesive composition.

32. The composition of claim 1 wherein said secondary polymer functions to increase or decrease low temperature resistance of the adhesive composition.

33. The composition of claim 1 wherein said secondary polymer functions to increase or decrease high temperature resistance of the adhesive composition.

34. The composition of claim 1 wherein said secondary polymer functions to increase or decrease creep resistance of the adhesive composition.

35. The composition of claim 1 wherein said secondary polymer functions to increase or decrease cohesive strength of the adhesive composition.

36. The composition of claim 1 wherein said secondary polymer functions to increase or decrease pressure sensitivity of the adhesive composition.

37. A corrugated box article bonded with the adhesive composition of claim 1.

38. A laminate comprising a first layer of nonwoven material, a second layer of nonwoven material, and a plurality of elastic strands disposed between said first and second nonwoven layers, bonded together with the adhesive composition of claim 1.

39. A laminate comprising a first layer of nonwoven material, a second layer of film material, and a plurality of elastic strands disposed between said first and second layers, bonded together with the adhesive composition of claim 1.

40. The laminate of claim 39 where the said film comprises a polyethylene film, a polypropylene film, an ethylene-propylene copolymer film or a polyolefin coated cloth-like nonwoven material.

41. A laminate comprising a first layer of nonwoven material bonded to a second layer of film material with the adhesive composition of claim 1.

42. The laminate of claim 41 where the said film material comprises a polyethylene film, a polypropylene film, an ethylene-propylene copolymer film or a polyolefin coated cloth-like nonwoven material.